U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID PACIFIC REGION
SACRAMENTO CA

July 2007

FINDING OF NO SIGNIFICANT IMPACT

STANISLAUS RIVER SALMONID SPAWNING GRAVEL ADDITION 2007

Prepared by: Doug Kleinsmith Date: 7/24/07
Environmental Specialist

Recommended: _____ Date: 7-25-07
Program Manager

Approved: Michael Tucker, Deputy for Date: 7/25/07
Chief, Division of Environmental Affairs

FONSI No. 07-08-MP

BACKGROUND

The Bureau of Reclamation (Reclamation) has prepared a final environmental assessment (EA) in July 2007 to evaluate the effects of adding spawning gravel to the Stanislaus River near Knights Ferry Bridge.

The purpose of the action is to replenish spawning gravel at existing and new restoration sites in the Lower Stanislaus River near Knights Ferry Bridge to increase and improve Chinook salmon, steelhead, and native rainbow trout spawning habitat. The need of the action derives from the declines of salmonid stocks due in part to loss of spawning habitat through curtailment of gravel recruitment due to blockage of the river channel by dams.

Work will start in the summer of 2007 and continue yearly up to 5 years as funding allows through the permitted period. Work would be conducted within a reach of the river that is 5,700 feet long. The actual gravel placement work would occur in a much smaller total reach of the river. The specific placement would cover up to approximately eight sites (created riffles) for a total reach length of placed gravel to be about 900 feet of the river within the 5,700 foot long reach. The acres of streambed to be affected would be approximately 1.7 acres over the life of the project.

The method of addition will most likely be by front end loader. If access to a specific spot is difficult, Reclamation may potentially use the habitat builder system.

FINDINGS

According to the National Environmental Policy Act and consistent with the EA, the Mid-Pacific Regional Office of Reclamation has determined that the proposed action is not a major Federal action that will significantly affect the quality of the human environment. Therefore, an Environmental Impact Statement is not required for carrying out the proposed action.

The following factors support this determination:

1. The proposed action will not significantly affect water quality. Turbidity downstream from the project site will be kept to a minimum during construction. Only a temporary increase in turbidity is expected. River flows at the time of construction will be low enough (approximately 200 to 500 cfs.) to allow disturbed fine sediment to quickly settle out of the water column.

Equipment access, maintenance, refueling, parking and staging areas will be identified in consultation with U. S. Corps of Engineers (COE) personnel prior to project construction. Construction specifications will prohibit any equipment in or near the river which might affect water quality. Project construction will be regularly monitored by DFG personnel to help insure environmental compliance.

2. The proposed action will not affect threatened or endangered terrestrial species. Prior to using heavy equipment on access routes to the river or laying pipe from the staging area to the river, Reclamation will conduct a site survey to identify and flag any elderberry bushes. The routes will avoid damage to any elderberry bushes. If circumstances change and the project may affect the valley elderberry longhorn beetle, Reclamation will consult with the Fish and Wildlife Service. No other sensitive species were found at the areas to be disturbed. A seasonal wetland at the southwest end of the project area may be potential habitat for the California tiger salamander, but it will be flagged or fenced and avoided during construction.

3. The proposed action will not adversely affect threatened or endangered fish. The placement of gravel will occur from June 30 to September 1, before the spawning season and after the incubation period for steelhead trout and salmon. The temporary increase in turbidity will not affect fish. The placement of gravel would increase the amount of and improve existing salmon and trout spawning habitat.

4. The proposed action will not significantly affect other biological resources. Existing access roads will be used and staging of material will occur in site previously disturbed with compacted soil.

The seasonal wetland will be flagged and avoided during gravel placement. Riparian vegetation will be avoided or minimally trimmed. A total of 0.08 acres of willows and one tree will be removed.

Reclamation will implement the terms, conditions, and provisions in the Streambed Alternation Permit between Reclamation and the California Fish and Game, which is attached to the July 2007 EA.

5. The proposed action will not significantly affect recreation. Work will not be done on weekends, when most rafting occurs. Signs will be placed to alert the public, including river rafters, about the gravel placement.

6. The proposed action will not significantly affect cultural resources. Reclamation archeologists will complete a field survey in late spring or early summer 2007. Reclamation will consult with the State Historic Preservation Office. Any historic properties eligible for the National Register would be protected throughout the duration of the project.

In the event of an unanticipated discovery of unknown cultural resources during the project activities, work would be suspended in the area until the find can be assessed by a qualified archaeologist and implement avoidance, preservation, or recovery measures as appropriate prior to any work resuming at that specific location.

7. The proposed action will not significantly increase traffic, noise, or air emissions.

8. The proposed action will not affect any Indian Trust Assets.

9. The proposed action will not disproportionately impact minority and disadvantaged populations or communities.

RECLAMATION

Managing Water in the West

FINAL
ENVIRONMENTAL ASSESSMENT

STANISLAUS RIVER SALMONID SPAWNING GRAVEL ADDITION 2007

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID PACIFIC REGION
SACRAMENTO, CALIFORNIA

July 2007

INTRODUCTION

The Central Valley Project Improvement Act, section 3406 (b)(13) directs the Department of Interior to develop and implement a continuing program for the purpose of restoring and replenishing, as needed, salmonid spawning gravel lost due to the construction and operation of Central Valley Project dams, bank protection projects, and other actions that have reduced the availability of spawning gravel and rearing habitat in the Upper Sacramento River from Keswick Dam to Red Bluff Diversion Dam in the American and Stanislaus Rivers downstream from the Nimbus and Goodwin Dams, respectively. The program may include preventive measures, such as re-establishment of meander belts and limitations on future bank protection activities, in order to avoid further losses of instream and riparian habitat.

This project serves as the implementation of section 3406 (b)(13) in the Stanislaus River with the goal being to increase the availability of spawning gravel and rearing habitat for Stanislaus River Chinook salmon and steelhead trout. The Stanislaus River Fish Group rated the overall spawning habitat quantity and quality as unsuitable and rated spawning habitat restoration as a high impact activity to increase the salmon population.

The Bureau of Reclamation (Reclamation) and the California Department of Fish and Game (DFG) have replenished gravel in the Stanislaus River near Goodwin Dam in 1997, 1999, and 2000-2006.

PURPOSE AND NEED

The purpose of the action is to replenish spawning gravel at existing and new restoration sites in the Lower Stanislaus River near Knights Ferry Bridge to increase and improve Chinook salmon, steelhead, and native rainbow trout spawning habitat. (See Figures 1 and 2). The need of the action derives from the declines of salmonid stocks due in part to loss of spawning habitat through curtailment of gravel recruitment due to blockage of the river channel by dams.

PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION

Work would be conducted within a reach of the river that is 5,700 feet long. The actual gravel placement work would occur in a much smaller total reach of the river. The specific placement would cover up to approximately eight sites (created riffles) for a total reach length of placed

gravel to be about 900 feet of the river within the 5,700 foot long reach. The acres of streambed to be affected would be approximately 1.7 acres over the life of the project.

Work would start in the summer of 2007 and continue yearly up to 5 years as funding allows through the permitted period. Figure 2 shows the area where gravel could be added, stockpile areas, and the access staging routes. The cross hatch areas are specific potential locations that may shift to anywhere within the orange area. The amount of gravel to be added could be up to 5,000 cubic yards per year and 25,000 cubic yards over a five year period.

The method of addition would most likely be by front end loader. If access to a specific spot is difficult, Reclamation may potentially use the habitat builder system (gravel transported with water through a pipe). Gravel would be placed at intervals of one to a few years apart as the need is determined by ongoing monitoring of gravel conditions and fish use of the gravel. New gravel would be needed to replenish spawning gravel that washes downstream and is not replaced by upstream sources. The interval of gravel replacement at a particular site would depend on the river flows that occur. Gravel placement in this reach would continue as needed following the first placement.

The general timing window for instream work in the Stanislaus River as currently recommended by the National Marine Fisheries Service (NMFS) is June 30 to September 1 to cover both steelhead and Chinook salmon. Work mobilizing gravel and equipment to the sites could occur outside of this window, but all work in the water needs to be confined to this window. Occasionally exceptions to this period are granted by NMFS on a case by case basis based on fish presence and the nature of the project.

The approximate size distribution of gravel is as follows.

1. The gravel shall consist of hard, dense, and durable particles of river run, well rounded materials. The materials shall be processed to achieve the gradation limits specified below and washed to be free from fines. Crushed or angular pieces are not acceptable.
2. Spawning Gravel Gradations:
    a. Reasonably well-graded mix made using a ¼" screen on the bottom to approximate the limits shown in Table 1 - Mix Gradation. The D_{50} (median diameter of sample) of the mix should be between 1 inch and 1-1/2 inch. Refer to ASTM D 6913-04 for the standard test method regarding the gradation of soils.

b.

Table 1 - Mix Gradation

Screen Size (inch)	Percent Passing by Dry Weight
5	100
2	65 - 85
1	40 - 60
0.75	15 - 30
0.25	2-5
0.125	0-2
0.0625	0

3. Gravel shall be washed and have a cleanness value of 85 or higher based on CalTrans Test #227 (http://www.dot.ca.gov/hq/esc/ctms/CT_227.pdf).

Gravel would be obtained from private sources by contract and delivered to the site. If we find acceptable gravel sources along the river then they would be permitted separately. The estimated number of trucks running per day would be up to seven. The route to the sites would use the shortest route that meets the load requirements of the delivery trucks.

Staging areas would be located on U.S. Army Corps of Engineers Property and would be coordinated with the staff at the Stanislaus River Parks office in Knights Ferry who administers the land. Existing unimproved trails would be used by transport trucks to deliver gravel to a stockpile area. Stockpile areas would be located as near as possible to the river. As gravel is delivered to stockpile areas it would be picked up by front end loader and transported to the river. Stockpile areas would be generally about one half acre or less and would be placed in existing openings where ground disturbance would be minimized by working on existing dredger tailings or similar type of material. Construction specifications would prohibit any equipment in or near the river which might affect water quality. Project construction would be regularly monitored by DFG personnel to help insure environmental compliance.

Gravel would be placed using either front-end loaders (which is preferable) or a gravel pump system:

Front Ender Loader Method Description
Gravel would be added in accessible locations using front end loaders. This system is the lowest cost and provides the greatest ability to add the gravel in a specific desired configuration. Loaders would pick up a scoop load of gravel from the stockpile location near the placement site in the river. The loader would drive from the stockpile into the river and carefully dump the

gravel in a manner as to distribute it across the river bottom. Placement would proceed starting with the river access site and working out into the river from there. This would allow the loaders to drive on the newly placed gravel, thereby avoiding driving in overly deep water. The loader would distribute the gravel along the river bottom to create the hydraulic conditions necessary for salmonid spawning.

Gravel Pump Description
The "Habitat Builder", as it is termed, is basically a gravel pump system. There are two six-inch water pumps which Y into an eight-inch line. Gravel is fed into a hopper with a grizzly and vibrating plate attached. The gravel is then fed into the eight-inch line via the hopper and is directed to wherever it is to be placed. Barrels are used to support the discharge pipe on the water's surface, and help with the placement of the material.

This system is ideal in locations where leaving a minimal construction footprint is desired. The eight-inch "Yelomine" pipe is durable and fairly flexible and can be placed over the existing ground surface. Head-loss is a large concern with this system, so it needs to be placed in such a manner so that the pipe continuously maintains a downward slope. Clogging is an area of concern, although recent modifications have reduced this problem. The water pumps need to be within 30 vertical feet of a water source in order to have sufficient head to pump the water. We used this system in 2004 to place gravel in a section of Goodwin Canyon that loaders could not access. This system works well under the right conditions. The cost is higher than a front end loader but it provides access through steep terrain or riparian vegetation where driving to a site would cause undesirable ground disturbance or be unsafe.

Description of best management practices to avoid/minimize impacts to waters.

Gravel placement would occur in the late summer/early fall to avoid times when steelhead or Chinook eggs, the life stages most sensitive to such activities, could be incubating. Snorkel observations have revealed that during past gravel placement projects at this site and instream work at other sites, trout have been attracted by the activity and feed heavily just downstream of the site where food particles are often abundant. This area has a high concentration of trout year round, but the turbidity does not appear to be substantial enough to negatively affect the fish in the river at the time as they are attracted to the sites.

During gravel placement some turbidity would occur as the gravel is placed into the river. Turbidity would extend downstream to at least the first slow water area about two miles downstream and may extend down over six miles to Orange Blossom Bridge, depending on flows. During past gravel placement projects near Goodwin Dam, turbidity has sometimes been faintly visible four miles downstream at Knights Ferry. Past gravel placement projects have demonstrated that the turbidity at the site would end within less than one hour (generally within five minutes) following completion of instream activities. The timing window for instream work would avoid times when steelhead or Chinook eggs, the life stages most sensitive to such

activities, could be incubating. Snorkel observations have revealed that during past gravel placement projects in the Stanislaus River trout have been attracted by the activity and feed heavily just downstream of the site where food particles are often abundant. This area has a high concentration of trout year round, but the turbidity does not appear to be substantial enough to negatively affect the fish in the river at the time as they are attracted to the sites.

The spawning gravel would be either dry screened or washed with water prior to placing it in the river. This decreases the amount of turbidity created as the gravel as placed. If the route used by the loaders to access the river consists of material that introduces turbidity then the spawning gravel material would be spread over the loader route to minimize any sediment introduction.

Other Mitigation Included in the Proposed Action

Reclamation would implement the terms, conditions, and provisions in the Stream Alteration Agreement between Reclamation and the California Department of Fish and Game. (See Appendix 2.)

NO ACTION ALTERNATIVE

Gravel would not be placed in the Stanislaus River near Knights Ferry Bridge, leaving the stream in poor condition as spawning habitat for salmonids. Further declines in habitat quality would be likely, leading to eventual loss of nearly all spawning activity in this reach.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Water Quality

Turbidity downstream from the project site would be kept to a minimum during construction. Gravels to be added would be washed and sorted gravels of fairly large dimensions. Only a temporary increase in turbidity is expected. River flows at the time of construction would be low enough (approximately 200 to 500 cfs.) to allow disturbed fine sediment to quickly settle out of the water column.

Aquatic Biota

Steelhead

Historically, steelhead distribution extended into the headwaters of the Stanislaus River (Yoshiyama et al. 1996). Dam construction and water diversion for mining and irrigation purposes began during and after the Gold Rush. Goodwin Dam, constructed in 1913, was probably the first permanent barrier to significantly affect Chinook salmon access to upstream habitat. Goodwin Dam had a fishway, but Chinook could seldom pass it. Steelhead may have

been similarly affected. The original Melones Dam, completed in 1926, permanently prevented access to upstream areas for all salmonids. Currently, steelhead can ascend over 58 miles up the Stanislaus River to the base of Goodwin Dam. Although steelhead spawning locations are unknown in the Stanislaus, most is thought to occur upstream of the City of Oakdale where gradients are slightly higher and more riffle habitat is available.

The Fishery Foundation of California (Kennedy and Cannon 2002) has monitored habitat use by juvenile steelhead/rainbow since 2000 by snorkeling seven sites from Oakdale to Goodwin Dam every other week. Steelhead fry generally begin to show up in late March and April at upstream sites, with densities increasing into June and distribution becoming more even between upstream and downstream sites through July. Beginning in August and continuing through the winter months, densities appeared highest at upstream sites (Goodwin to Knights Ferry). Age 1-plus fish were observed throughout the year with densities generally higher at upstream sites (Goodwin to Knights Ferry). Low densities were observed from late December until April. It is unknown whether fish leave the system in December or if, with the cooler winter water temperatures, they were less active and more concealed during the day.

Since 1993, catches of juvenile steelhead/rainbow in RSTs indicate a small portion of the Stanislaus River steelhead/rainbow population displays downstream migratory characteristics at a time that is typical of steelhead migrants elsewhere. The capture of these fish in downstream migrant traps and the advanced smolting characteristics exhibited by many of the fish indicate that some steelhead/rainbow juveniles might migrate to the ocean in spring. However, it is not known whether the parents of these fish were anadromous or fluvial. Resident populations of steelhead/rainbow in large streams are typically fluvial (they migrate within freshwater), and migratory juveniles look much like smolts. Further work is needed to determine the parental life histories that are producing migratory juveniles. A weir has been operated for four years in the Stanislaus River near Riverbank, in part to determine migration characteristics of adult steelhead/rainbow and allow scale samples to be taken to determine the extent of anadromy.

Smolts have been captured each year since 1995 in rotary screw traps at Caswell State Park and at Oakdale (Demko et al. 2000). Captures occurred throughout the time the traps were run, generally January through June. Most fish were between 175 and 300 mm at the Caswell site, with only 6 fish in 7 years less than 100 mm. Larger numbers of fry were captured upstream at Oakdale. During 2001, 33 smolts were captured at Caswell and 55 were captured at Oakdale, the highest catch of all years. The higher catch in 2001 was likely due to more fish present and not better trap efficiencies (Doug Demko, personal communication, 2001). Trap efficiencies for Chinook in 2001 ranged from 5 to 19 percent at Caswell and from 1 to 30 percent at Oakdale and were generally correlated with flow. RSTs are generally not considered efficient at catching fish as large as steelhead smolts.

Genetic analysis of rainbow trout captured below Goodwin Dam shows that this population has closest genetic affinities to upper Sacramento River steelhead (NOAA Fisheries 1997b).

Large-scale loss of spawning and rearing habitat has been attributed as having the single greatest effect on steelhead distribution and abundance (McEwan and Jackson 1996). Historically, steelhead spawned and reared primarily in mid- to high-elevation streams where water temperatures remained suitable all year. Yoshiyama et al. (1996) estimated that 82 percent of

the historical Chinook salmon spawning and rearing habitat has been lost. The percentage of habitat loss for steelhead is presumably greater, because steelhead were more extensively distributed than Chinook salmon. Steelhead could have used numerous smaller tributaries not used by Chinook salmon due to the steelhead's upstream migration during periods of higher flow, superior leaping ability, ability to use a wider variety of spawning gravels, and ability to pass through shallower water.

Chinook Salmon

The first fall-run Chinook salmon adult migrants entering the Stanislaus River are typically observed in late September. The majority of spawning occurs from October through December. Eggs are laid in nests called redds, and need cool water and good water flow (to supply oxygen) to survive. Once spawning is completed, adult Chinook salmon die.

Young salmon typically begin to emerge from the redds in mid-December and have an average fork length of approximately 35 mm. Fry (<45 mm) and parr (45 mm to 79 mm) may spend time rearing within riverine and/or estuarine habitats including natal tributaries, the San Joaquin River, non-natal tributaries to the San Joaquin River, and the Delta. In general, emigrating juveniles that are younger (i.e., smaller) reside longer in estuaries such as the Delta (Kjelson and others 1982; Levy and Northcote 1982; Healey 1991). The brackish water areas in estuaries moderate the physiological stress that occurs during parr-smolt transitions. In the Stanislaus River, the majority (>95%) of fall-run Chinook juveniles typically emigrate from the river and enter the San Joaquin River and Delta as fry, parr, or smolts from January through May. Although fry and parr can enter the Delta as early as January and as late as June, their length of residency within the Delta is unknown but probably lessens as the season progresses into the late spring months (CDFG 1998a).

After a brief, or sometimes relatively extended, residence time within estuarine areas, juvenile salmon continue their migration to sea where they spend anywhere from one to five years maturing (average 3-4 years) before returning to their natal streams to spawn (Healey 1991).

Chinook dig a redd (nest) and deposit their eggs within the stream sediment where incubation, hatching, and subsequent emergence take place. Spawning typically occurs in gravel beds that are often located at the tails of the holding pools (USFWS 1995, CDFG 1998b). Chinook salmon generally spawn in water from one to three feet deep, however, spawning can occur in depths from 0.5 to greater than 20 feet deep (CDFG 1998b). Other criteria include water velocities of 1 to 3.5 feet per second, a gradient of 0.2 to 1.0 percent, substrate from 0.5 to 10 inches dominated by 1- to 3-inch cobble, and escape cover (CDFG 1998b; Puckett and Hinton 1974). The upper preferred water temperature for spawning adult Chinook salmon has been identified as 55°F (Chambers 1956) to 57°F (Reiser and Bjornn 1979) which is similar to the upper preferred water temperature for migration (56°F)

The Chinook salmon escapement estimate in the Stanislaus River has averaged 3,318 fish since 1990 and ranged from 250 to 8,500. The area around Knights Ferry is a high density spawning area. Every high quality spawning riffle in the upper river (roughly Lover's Leap and above)

gets used extensively for spawning.

Existing Stanislaus River Conditions and Effects on Fall-run Chinook Spawning (excerpt from Stanislaus Fisheries Summary)

Based on several spawning surveys and environmental studies, there appear to be several factors that may influence fall-run Chinook spawning and spawning habitat in the Stanislaus River including limited spawning gravel supplies; substrate armoring and embeddedness; and increased turbidity levels. Spawning habitat has been altered as a result of reduced gravel recruitment due to gravel mining and blockage of coarse sediments and reduced sediment transport flows caused by dams, and changes in streamside land use.

Natural riverine habitats are created and maintained by geomorphic and hydrologic processes that result from the interactions between flowing water and sediment supply, and from the secondary influences of large woody debris (McBain and Trush 2003). It is the structure, complexity, and connectivity of these habitats combined with other factors, such as land use and species introduction, which regulate species abundance and distribution. These processes have been substantially altered in the Stanislaus River by anthropogenic activities such as gravel and gold mining; removal of large woody debris; agricultural and urban development; land, water, hydroelectric, and flood control project development. The Stanislaus River is considered to have the most degraded channel complexity of the San Joaquin tributaries (CALFED 1999).

Instream gravel and gold mining peaked during the early 1940s (Frymire, personal communication, 2000) and ceased sometime prior to 1980 (exact dates are unknown because gravel miners are not required to maintain records). During this time, approximately 40% of the spawning habitat was excavated from the 11.4-mile reach between Goodwin Dam (RM 58.3) and the Orange Blossom Bridge (RM 46.9; Appendix 2) which is where most Chinook salmon currently spawn in the lower Stanislaus River (Figure 1). There are only a few sections of the river between Knights Ferry (RM 54) and the Orange Blossom Bridge that were not mined. The riffles in the unmined areas were usually well used by spawning salmon in fall 1994 and 1995 compared to the riffles that remain in the mined reaches. One possible explanation is that although riparian encroachment since the construction of New Melones Reservoir in 1979 and pre-1970 dike construction have accelerated the scour of gravel from spawning riffles, gravel that is scoured from the riffles in the unmined reaches provides recruitment for the downstream riffles. Over time, the upstream most riffles in the unmined reaches typically became degraded whereas the downstream riffles usually contain abundant gravel and still function as high quality spawning and rearing habitat. Furthermore, there is a small amount of remaining floodplain habitat in these reaches that probably helps remove fines from the active channel and minimize the rate of scour. Conversely, the riffles in the mined reaches are typically isolated between ditches or ponds, and so the gravel is scoured away during high flows due to the absence of gravel recruitment.

Flow regulation, combined with direct habitat degradation by dredging and instream mining activities, have disrupted the geomorphic and hydrologic processes responsible for creating and

maintaining natural riverine habitats downstream. Upstream dams have blocked nearly the entire coarse sediment supply to the lower river (Kondolf and others 2001). The limited amount of coarse sediments entering the river from areas below Goodwin Dam are often captured in the dredged channels and instream mine pits that exists in the lower river which further limits gravel recruitment to areas downstream from these dredged areas. As a result of decreased coarse sediment supplies due to the dams and to the capture of sediments by dredged areas, the lower river channel has become narrower and deeper in some areas while wider and shallower in others (Kondolf and others 2001) and many of the gravel beds have become armored (i.e., consist of large gravel, cobbles, and boulders that are too heavy for the current to move) and smaller as the gravel has gradually eroded away.

Additionally, the management of the upstream reservoirs has reduced the frequency of high flows downstream from Goodwin Dam. In natural riverine ecosystems, flooding increases the rate that gravel is scoured from riffles while fines are deposited on the floodplain and relatively clean gravel is deposited on the riffles during the descending limb of the hydrograph (Kondolf and others 2001; McBain and Trush 2003). If this process is impaired and fines fill the interstitial spaces in the gravel beds, the bed becomes more resistant to mobilization during high flows and the habitat can become unsuitable for both invertebrates and incubating salmonid eggs (McBain and Trush 2003).

Conditions for steelhead spawning in the Stanislaus River are about the same as for Chinook salmon.

Gravel Placement Effects on Steelhead and Chinook Salmon

The placement of gravel would increase the amount of and improve existing salmon and trout spawning habitat. The area around Knights Ferry has had gravel placed in the past at the Knights Ferry road bridge. The area still gets high spawning use but some gravel has washed downstream. Additional gravel at this site would further improve spawning. Gravel at the other locations displayed in the site map will also increase the limited amount of spawning habitat. During gravel placement some turbidity would occur as the gravel is placed into the river. Turbidity would extend downstream to at least the first slow water area about two miles downstream and may extend down over six miles to Orange Blossom Bridge, depending on flows. During past gravel placement projects near Goodwin Dam, turbidity has sometimes been faintly visible four miles downstream at Knights Ferry. Past gravel placement projects have demonstrated that the turbidity at the site would end within less than one hour (generally within five minutes) following completion of instream activities. The timing window for instream work would avoid times when steelhead or Chinook eggs, the life stages most sensitive to such activities, could be incubating. Snorkel observations have revealed that during past gravel placement projects in the Stanislaus River trout have been attracted by the activity and feed heavily just downstream of the site where food particles are often abundant. This area has a high concentration of trout year round, but the turbidity does not appear to be substantial enough to negatively affect the fish in the river at the time as they are attracted to the sites.

The placement of gravel would occur from June 30 to September 1, before the spawning season

and after the incubation period for steelhead trout and salmon.

Delta Smelt

Delta smelt, a Federally threatened species, occur in the Sacramento/San Joaquin Delta, downstream of the mouth of the Stanislaus River, generally below Mossdale. Water flowing through the project area eventually flows into habitat where delta smelt live. The spawning gravel placement site is more than 40 miles upstream from the mouth of the San Joaquin River. By the time water reaches the mouth any change in water quality or quantity due to the gravel addition would be undetectable. The water quality entering the San Joaquin from the Stanislaus is better than that present in the San Joaquin and in the rest of the delta where delta smelt live. No effect on delta smelt due to this project would occur.

Terrestrial Biota

The project occupies an area of the Stanislaus River that consists of a thin strip of riparian vegetation along each bank, with the dry, upland vegetation consisting of non-native grasslands and blue oak woodland or savannah. Riparian vegetation species primarily consist of valley oaks (*Quercus lobata*), Fremont cottonwoods (*Populus fremontii*), white alders (*Alnus rhombifolia*), and several willow species. At the southwest end of the project, a small seasonal channel becomes dry in summer months, creating a seasonal wetland.

Some of the access roads shown on Figure 2 have narrow sections of willows that would be cut out of the way right next to the river. A total of 0.08 acres of willows would be removed. The second site from the top has an oak tree, approximately 3-inches diameter that would need to be removed.

Stockpiling gravel would not affect any habitat as these areas have been previously disturbed with compacted soil.

There is a wetland to the east of the access road to the downstream sites but the project would not have any impacts to it because the road is already there and being used by vehicles.

Threatened and Endangered Species

FWS sent Reclamation a list of threatened and endangered species which may occur in the vicinity of the proposed action. (Appendix 1). Table 2 shows the results of a search of the California Natural Diversity Data Base for occurrences of State-listed, candidate, and sensitive species, as well as Federal-listed species.

Table 3 shows the Federal and State-listed threatened and endangered species, effects determination, and impact discussions. There would be no adverse impacts to any listed, proposed, or candidate Federal species, as the table indicates, and as discussed above in the Aquatic Biota section.

Threatened and endangered fish are discussed in detail in the Aquatic Biota section.

No threatened or endangered terrestrial species were observed. No sensitive plants were found within the project area. There is the potential for elderberries, a host plant for Valley Elderberry Longhorn Beetle (VELB) within the project area. However, none were found at the access roads or stockpile areas. One plant was next to the Army Corps parking lot at the gravel site near Knight's Ferry Bridge but it would not be affected by project activities. Access roads, staging areas, and, if the gravel pump is used, pipeline routes would again be surveyed before construction for elderberries; any found would be avoided.

There are some California Tiger Salamander (CTS) occurrences fairly close but identified in areas that have the typical CTS open grassland cattle pond/vernal pool habitats, outside of the river and floodplain riparian habitats. The project river area is unsuitable habitat due to the fast running water and abundant predators being present. while a seasonal wetland at the southwest end of the project area may be potential habitat, it would be flagged or fenced and avoided during construction.

There is no potential habitat for any of the State candidate and sensitive species in Table 2, except for the western pond turtle and Western spadefoot toad. The western pond turtle is found in generally quiet water in wetlands, including ponds, marshes, lakes, streams, irrigation ditches, and vernal pools. the pond turtle prefers habitats with large areas for cover (logs, algae, vegetation) and basking (logs, boulders). The seasonal wetland at the southwest end of the project area may be potential habitat. However, it would be flagged or fenced and avoided during construction.

The Western spadefoot toad has potential for occurrence although breeding habitats are associated with grasslands and vernal pools/cattle ponds with no predator competition. The seasonal wetland at the southwest end of the project area may be potential habitat. However, it would be flagged or fenced and avoided during construction.

Recreation

The downstream portion is a popular area for river rafting. Signs would be posted to alert rafters about the project work. Impacts to rafters would be minimized because work would not be done on weekends, when most rafting occurs.

Traffic, Noise and Air Quality

The project site is adjacent to the town of Knight's Ferry. Residents would be exposed to higher noise levels for one one-to-two week period. The main noise source would be from trucks backing up.

Trucks delivering gravel would temporarily increase noise levels and air emissions, but levels would be within the levels of existing activities, as this is the route that gravel trucks have been taking for existing gravel delivery operations.

Cultural Resources

Reclamation archeologists will complete a field survey in late spring or early summer 2007; results will appear in the final EA. Reclamation will then consult with the State Historic Preservation Office. Any historic properties eligible for the National Register would be protected throughout the duration of the project.

In the event of an unanticipated discovery of unknown cultural resources during the project activities, work would be suspended in the area until the find can be assessed by a qualified archaeologist and implement avoidance, preservation, or recovery measures as appropriate prior to any work resuming at that specific location.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property or rights held in trust by the United States for Indian tribes or individuals. Trust status originates from rights imparted by treaties, statutes, or executive orders. The proposed action would not affect any ITAs.

Environmental Justice

A Presidential Executive Order and subsequent Departmental Policy require that Federal agencies ensure that their actions do not disproportionately impact minority and disadvantaged populations or communities. This proposed action was determined to have no effect on these issues of concern.

AGENCY CONSULTATION AND COORDINATION

National Marine Fisheries Service

Section 7 of the Endangered Species Act requires federal agencies to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. Reclamation is seeking concurrence from the National Marine Fisheries Service that the proposed action is not likely to adversely affect the Central Valley steelhead or its critical habitat.

U.S. Army Corps of Engineers

Reclamation is applying for a Section 404 permit from the Army Corps of Engineers (Corps). Discharge of fill material into "waters of the U.S.," including "wetlands," is regulated by the Corps under Section 404 of the federal Clean Water Act.

California Department of Fish and Game

Reclamation is applying for a Streambed Alteration Permit.

California Regional Water Quality Control Board

The Regional Water Board requires that a project proponent obtain a Section 401 (CWA) water quality certification for Section 404 permits granted by the Corps. Reclamation will prepare and submit to the Regional Water Board a request for water quality certification.

National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological, and cultural resources. Reclamation will identify historical or archeological properties, including properties on or eligible for listing on the National Historic Register of Historic Places. Reclamation will then consult with the State Historic Preservation Office. Any historic properties eligible for the National Register would be protected throughout the duration of the project.

LIST OF PREPARERS AND CONTRIBUTORS

Doug Kleinsmith, Environmental Specialist, Bureau of Reclamation

John Hannon, Project Manager and Fishery Biologist, Bureau of Reclamation

Rhianna Lee, Environmental Scientist, California Department of Fish and Game

ENVIRONMENTAL COMMITMENTS

1. Equipment access, maintenance, refueling, parking and staging areas would be identified in consultation with U. S. Corps of Engineers (COE) personnel prior to project construction. Construction specifications would prohibit any equipment in or near the river which might affect water quality. Project construction would be regularly monitored by DFG personnel to help insure environmental compliance.

2. Turbidity downstream from the project site would be kept to a minimum during construction. Only a temporary increase in turbidity is expected. River flows at the time of construction would be low enough (approximately 200 to 500 cfs.) to allow disturbed fine sediment to quickly settle out of the water column.

3. Prior using heavy equipment on access routes to the river or laying pipe from the staging area to the river, Reclamation would conduct a site survey to identify and flag any elderberry bushes. The routes would avoid damage to any elderberry bushes. If circumstances change and the project may affect the valley elderberry longhorn beetle, Reclamation would consult with the Fish and Wildlife Service.

4. The placement of gravel would occur from June 30 to September 1, before the spawning season and after the incubation period for steelhead trout and salmon.

5. Signs would be placed to alert the public, including river rafters, about the gravel placement.

6. Existing access roads will be used and staging of material will occur in site previously disturbed with compacted soil

7. The seasonal wetland would be flagged and avoided during gravel placement.

8. Riparian vegetation would be avoided or minimally trimmed.

9. Reclamation archeologists will complete a field survey in late spring or early summer 2007. Reclamation would consult with the State Historic Preservation Office. Any historic properties eligible for the National Register would be protected throughout the duration of the project.

In the event of an unanticipated discovery of unknown cultural resources during the project activities, work would be suspended in the area until the find can be assessed by a qualified archaeologist and implement avoidance, preservation, or recovery measures as appropriate prior to any work resuming at that specific location.

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Appendix 1

Endangered Species List from Fish and Wildlife Service (Includes Listed Fish Species under National Marine Fisheries Service Jurisdiction)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

March 26, 2007

Document Number: 070326120931

Douglas Kleinsmith
Bureau of Reclamation, Division of Environmental Affairs
2800 Cottage Way
Sacramento, CA 95825

Subject: Species List for Stanislaus River Salmonid Spawning Gravel Addition

Dear: Mr. Kleinsmith

We are sending this official species list in response to your March 26, 2007 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7Â½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be June 24, 2007.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A

list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070326120931

Database Last Updated: March 5, 2007

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)
- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
    - California tiger salamander, central population (T)
    - Critical habitat, CA tiger salamander, central population (X)
- Rana aurora draytonii
    - California red-legged frog (T)

Reptiles

- Thamnophis gigas
    - giant garter snake (T)

Birds

- Haliaeetus leucocephalus
    - bald eagle (T)

Mammals

- Vulpes macrotis mutica
    - San Joaquin kit fox (E)

Plants

- Neostapfia colusana
    - Colusa grass (T)
    - Critical habitat, Colusa grass (X)
- Tuctoria greenei
    - Critical habitat, Greene's tuctoria (=Orcutt grass) (X)

Candidate Species

Fish

- Oncorhynchus tshawytscha
    - Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Quads Containing Listed, Proposed or Candidate Species:

KNIGHTS FERRY (459C)

OAKDALE (460D)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Appendix 2

Stream Alternation Agreement with California Department of Fish and Game

State of California - The Resources Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME

http://www.dfg.ca.gov
1234 East Shaw Avenue
Fresno, CA 93710
(559) 243-4005

July 24, 2007

John Hannon
U. S. Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

Dear Mr. Hannon:

Stream Alteration Agreement No. 2007-0100-R4
Stanislaus River – Stanislaus County

The Department of Fish and Game (Department) has determined that your Project described in Stream Alteration Agreement No. 2007-0100-R4 is exempt from the California Environmental Quality Act (CEQA), and will file a Notice of Exemption for your Project. The Notice of Exemption will be filed with the Office of Planning and Research, in accordance with CEQA.

Your copy of the signed agreement is enclosed. This completes the Department's agreement process. You may proceed with your Project according to the terms and provisions of your Stream Alteration Agreement if you have obtained all other permits required by local, other State, and Federal agencies. The Department's determination that your Project is exempt from CEQA may be legally challenged within 35 days following the filing of the Notice of Exemption. As a result, you may wish, but are not required, to delay commencement of your Project until after the 35-day period expires.

If you have any questions regarding this matter, please contact Brian Erlandsen, Environmental Scientist, at the above letterhead address or by telephone at (559) 243-4014, extension 231. Thank you for your cooperation.

Sincerely,

for Julie Means
W. E. Loudermilk
Regional Manager

Enclosure

NOTICE OF EXEMPTION

To: Office of Planning and Research
Post Office Box 3044
Sacramento, California 95812-3044

Office of the County Clerk
Stanislaus County

From: California Department of Fish and Game
Central Region
1234 East Shaw Avenue
Fresno, California 93710

Project Title: Stanislaus River Salmonid Spawning Gravel Addition 2007, Agreement No. 2007-0100-R4

Project Location (Specific): Up to eight locations within a 1.1-mile section of the Stanislaus River adjacent to Knights Ferry, in sections 28 and 29 of Township 1 South, Range 12 East, MDB&M in Stanislaus County.

Project Location (City and County): Eight miles east of Oakdale, in Stanislaus County

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Description of Project: Spawning gravel restoration by placing gravel with a median diameter of between 1 to 1.5 inches, at 8 locations along a 900 linear-foot length of a 5,700-foot section of the river.

Name of Public Agency Approving Project: California Department of Fish and Game (Reg. 4)

Name of Agency or Person Carrying Out Project: U.S. Bureau of Reclamation

Exempt Status (Class and Guidelines Section): Section 15333, Class 33 Exemption: Small Habitat Restoration Projects

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Reasons Why Project is Exempt: The project is a small restoration project with approximately 1.7 acres of actual disturbance; it would not have a significant adverse impact on any rare, threatened or endangered species or their habitat; no hazardous materials will be disturbed or removed during project activities. The project will not result in significant impacts when considered in connection to past projects, other current projects, and any probable future projects.

Lead Agency Contact Person: Brian Erlandsen **Phone**: (559) 243-4014

Signature: Julie Means **Date**: 7-26-07

fg1

William E. Loudermilk
Title: Regional Manager, Central Region

[X] Signed by Lead Agency
[ ] Signed by Applicant

Date received for filing at OPR: __

AGREEMENT

California Fish and Game Code Section 1602
Stream Alteration Agreement No. 2007-0100-R4
Stanislaus River - Stanislaus County

Parties:

California Department of Fish and Game
Central Region
1234 East Shaw Avenue
Fresno, California 93710

United States Bureau of Reclamation
Mr. John Harmon 2800
Cottage Way Sacramento,
California 95825

WHEREAS:

1. Mr. John Harmon, representing the United States Bureau of Reclamation (jointly referred to as the "Operator"), on May 14, 2007, notified ("Notification" No. 2007-0100-R4) the Department of Fish and Game (Department) of their intent to divert or obstruct the natural flow of, or change the bed or banks of, or use materials from the Stanislaus River in Stanislaus County, waters over which the Department asserts jurisdiction pursuant to Division 2, Chapter 6 of the California Fish and Game Code.

2. The Operator may not commence any activity that is subject to Fish and Game Code Sections 1600 et seq. until the Department has found that such Project shall not substantially adversely affect an existing fish or wildlife resource or until the Department's proposals, or the decisions of a panel of arbitrators, have been incorporated into such projects.

3. Fish and Game Code Sections 1600 et seq. make provisions for the negotiation of agreements regarding the delineation and definition of appropriate activities, Project modifications and/or specific measures necessary to protect fish and wildlife resources.

4. The Department has determined that without the mitigative features identified in this Agreement, the activities proposed in the Notification could substantially adversely affect fish and wildlife.

NOW THEREFORE, IT IS AGREED THAT:

1. The receipt of this document ("Agreement"), by the Operator, satisfies the Department's requirement to notify the Operator of the existence of an existing fish and wildlife resource that may be substantially adversely affected by the Project that is described in the Notification.

2. The contents of this Agreement constitute the Department's proposals as to measures necessary to protect fish and wildlife resources, and satisfy the Department's requirement to submit these proposals to the Operator.

3. The signature of the Operator's representative on this Agreement constitutes the Operator's commitment to incorporate Department's proposals into the Project described in the Notification.

4. This Agreement does not exempt the Operator from complying with all other applicable local, state and federal law, or other legal obligations.

5. This Agreement, alone, does not constitute or imply the approval or endorsement of a Project, or of specific Project features, by the Department of Fish and Game, beyond the Department's limited scope of responsibility, established by Code Sections 1600 et seq. This Agreement does not therefore assure concurrence, by the Department, with the issuance of permits from this or any other agency. Independent review and recommendations shall be provided by the Department as appropriate on those Projects where local, state or federal permits or environmental reports are required.

6. This Agreement does not authorize the "take" of state-listed threatened or endangered species. If the Operator, in the performance of the agreed work, discovers the presence of a listed species in the Project work area, work shall stop immediately. The Operator shall not resume activities authorized by this Agreement until such time as valid "take" permits are obtained from the Department pursuant to Fish and Game Code Sections 2081 (a) and 208 l(b) as appropriate.

7. To the extent that the Provisions of this Agreement provide for the diversion of water, they are agreed to with the understanding that the Operator possesses the legal right to so divert such water.

8. To the extent that the Provisions of this Agreement provide for activities that require the Operator to trespass on another owner's property, they are agreed to with the understanding that the Operator possesses the legal right to so trespass.

9. To the extent that the Provisions of this Agreement provide for activities that are subject to the authority of other public agencies, said activities are agreed to with the understanding that all appropriate permits and authorizations shall be obtained prior to commencing agreed activities.

10. All Provisions of this Agreement remain in force throughout the term of the Agreement. Any Provision of the Agreement may be amended at any time, provided such amendment is agreed to in writing by both parties. Mutually approved amendments become part of the original

Agreement and are subject to all previously negotiated Provisions. The Agreement may be terminated by either party, subject to 30 days written notification.

11. The Operator shall provide a copy of the Agreement to the Project supervisors and all contractors and subcontractors. Copies of the Agreement shall be available at work sites during all periods of active work and shall be presented to Department personnel upon demand.

12. The Operator agrees to provide the Department access to the Project site at any time to ensure compliance with the terms, conditions, and Provisions of this Agreement.

13. The Operator and any contractor or subcontractor, working on activities covered by this Agreement, are jointly and separately liable for compliance with the Provisions of this Agreement. Any violation of the Provisions of this Agreement is cause to stop all work immediately until the problem is reconciled. Failure to comply with the Provisions and requirements of this Agreement may result in prosecution.

14. The Operator assumes responsibility for the restoration of any fish and wildlife habitat which may be impaired or damaged either directly or, incidental to the Project, as a result of failure to properly implement or complete the mitigative features of this Agreement, or from activities which were not included in the Operator's Notification.

15. It is understood that the Department enters into this Agreement for purposes of establishing protective features for fish and wildlife, in the event that a Project is implemented. The decision to proceed with the Project is the sole responsibility of the Operator, and is not required by this Agreement. It is agreed that all liability and/or incurred costs, related to or arising out of the Operator's Project and the fish and wildlife protective conditions of this Agreement, remain the sole responsibility of the Operator. The Operator agrees to hold harmless and defend the Department of Fish and Game against any related claim made by any party or parties for personal injury or other damage.

16. The terms, conditions, and Provisions contained herein constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement are subject to separate notification pursuant to Fish and Game Code Sections 1600 et seq.

California Environmental Quality Act (CEQA) Compliance: As a CEQA Lead Agency, the Department has determined the Project as described in the Notification qualifies as a Class 33 exemption from the provisions of CEQA, pursuant to Section 15333-Small Habitat Restoration Projects. The Department will submit a Notice of Exemption to the State Clearinghouse.

This Agreement contains a Monitoring and Reporting Program (MRP), to incorporate monitoring and reporting requirements for the activities authorized in this Agreement.

Project Location: The work authorized by this Agreement will occur within or adjacent to the Stanislaus River (Figure 1), at eight different sites within a 1.1-mile section of the river that flows adjacent to Knights Ferry, in sections 28 and 29 of Township 1 South, Range 12 East, MDB&M in Stanislaus County. Unless changes are submitted and approved by the Department, the Project shall be built in the location indicated on the maps/drawings that were submitted with the Notification.

Project Description: The Operator's Notification includes Fish and Game Notification Form FG2023, maps, photos, a Draft Environmental Assessment prepared for the project, and other submitted information. The Notification comprises the Operator's Project description, and it is used as the basis for establishing the protective Provisions that are included in this Agreement. Any changes or additions to the Project as described in the Notification shall require additional consultation and protective Provisions. The Department's CEQA Determination is based upon the Operator's commitment to full implementation of the Provisions of this Agreement. The Operator has proposed the scope of work described below.

- Placing gravel, with a median diameter of between 1 to 1.5 inches, at 8 locations along a 900 linear-foot length of a 5,700-foot section of the river
- Gravel will be placed either by a front-end loader, or by transporting gravel with water through a pump system termed a "Habitat Builder"
- Gravel will be added at a rate of 5,000 cubic yards/year for up to five years as funding allows

Plant and Animal Species of Concern: This Agreement is intended to minimize and mitigate adverse impacts to the wildlife resources that may occupy this area of Cottonwood Creek and the San Joaquin River and the immediate adjacent habitat. Special-status species that could potentially be impacted are the California tiger salamander *{Ambystoma californiense),* western pond turtle *(Clemmys marmorata)),* beaked clarkia *(Clarkia rostrata)* as well as other birds, mammals, fish, reptiles, amphibians, invertebrates and plants that comprise the local ecosystem.

PROVISIONS:

General

1. Agreed activities, within the streams may commence after the Department has signed this Agreement and pre-Project Provisions and protective features are implemented. This Agreement shall remain in effect for five (5) years beginning on the date signed by the Department. If the Project is not completed prior to the expiration date defined above, the Operator shall contact the Department to negotiate a new expiration date and any new requirements.

2. When known, the Operator shall provide a construction/work schedule to the Department (mail, or fax to (559) 243-4594), with reference to Agreement 2007-0100-R4 prior to beginning any activities covered by this Agreement. The Operator shall also notify the Department upon the completion of the activities covered by this Agreement.

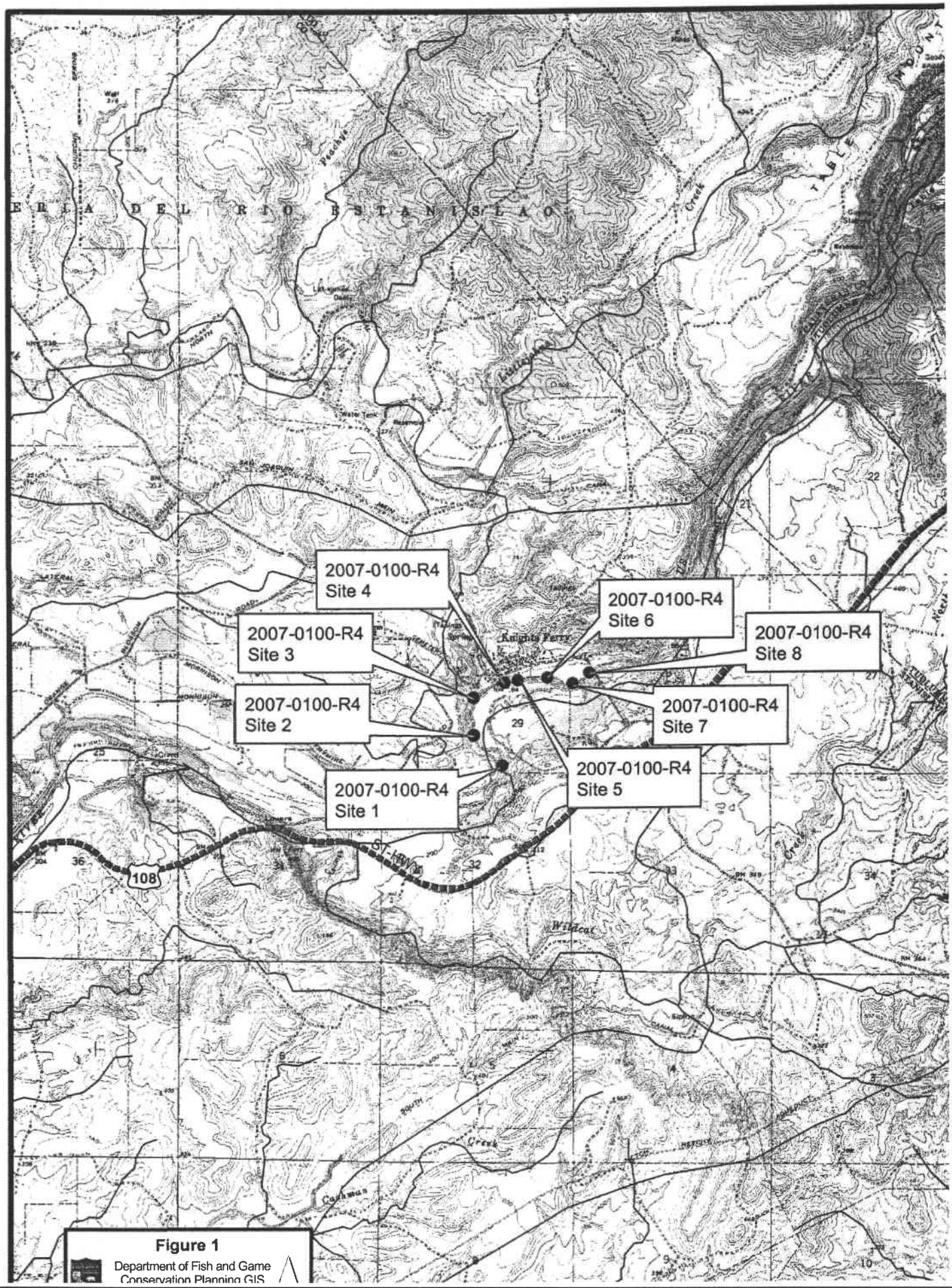

Figure 1

Department of Fish and Game
Conservation Planning GIS

3. Prior to starting any activity within the stream, all workers shall have received training from the Operator on the contents of this Agreement, the resources at stake, and the legal consequences of non-compliance.

4. Any native vegetation damaged or removed incidental to Project activities, shall be subject to compensatory mitigation as described in the Restoration provisions below. Any such mitigation shall be implemented by the Operator above and beyond any restoration proposed in the Notification and shall be incorporated into any monitoring plan proposed by the Operator.

Flagging/Fencing

5. Within the stream corridors, the Operator shall identify the upstream and downstream limit: of the minimum required work area, the Project footprint, and other encroachments into the stream including any required vehicle access corridors. These limits shall be identified by the Operator prior to construction. All areas within the Stanislaus River, but beyond the identified work area limits, shall be considered Environmentally Sensitive Areas (ESA) and shall not be disturbed. Flagging/fencing shall be maintained in good repair for the duration of the Project.

Listed/Sensitive Species

6. This Agreement does not allow for the take, or incidental take, of any State-listed or Federal-listed threatened or endangered species.

7. The Operator affirms that no "take" (hunt, pursue, catch, capture, kill, or attempt) of listed species will occur as a result of this Project and will take prudent measures to ensure that all take is avoided. The Operator acknowledges that they fully understand that they do not have State incidental take authority. If any State or Federally listed Threatened or Endangered species occur within the proposed work area or could be impacted by the work proposed, and thus "taken" as a result of Project activities, the Operator is responsible for obtaining and complying with required State and Federal threatened and endangered species permits or other written authorization before proceeding with this Project.

8. Liability for any take, or incidental take, of such listed species remains the separate responsibility of the Operator for the duration of the Project.

9. The Operator shall immediately notify the Department of the discovery of any such rare, threatened, or endangered species prior to and/or during construction.

Wildlife

10. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

11. All pipes or similar structures that cannot be inspected (due to bends, etc.) shall be capped or otherwise covered prior to being left overnight. If an animal is found in a pipe, the pipe will be avoided and the animal(s) left to leave of their own accord.

12. All instream work shall be completed during daylight hours, and within a time window of between June 30 and September 1. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of Chinook salmon *{Oncorhynchus tshawytscha)*.

13. To protect nesting birds, no construction shall be completed from March 1 through July 1 unless the following preconstruction surveys are completed by a qualified biologist.

Raptors: Survey for nesting activity of raptors within a 500-foot radius of the construction site. Surveys shall be conducted at appropriate nesting times and concentrate on mature trees. If any active nests are observed, these nests and nest trees shall be designated an ESA and protected (while occupied) during Project construction.

Other Avian Species: Survey riparian areas for nesting activity within a 500-foot radius of the defined work area 2 to 3 weeks before construction begins. If any nesting activity is found, the Operator shall contact the Department and mitigation, specific to each incident, shall be developed.

Vegetation

14. The disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations (with the exception of exotic plant species) and shall only occur within the defined work area. Precautions shall be taken to avoid other damage to vegetation by people or equipment. The disturbed portions of the stream bed, banks or channel shall be restored to as near their original condition as possible (see Restoration below).

15. No elderberry bushes shall be pruned or removed in association with this Project without prior consultation with the United States Fish and Wildlife Service.

16. Vegetation or material removed shall not be stockpiled in the streambed or on its banks without measures to ensure its stability, preventing accidental discharge into the stream.

Vehicles

17. Construction vehicle access to the stream banks and bed shall be limited to predetermined ingress and egress corridors on existing roads. All other areas adjacent to the work site shall be considered an ESA and shall remain off-limits to construction equipment. Vehicle corridors and the ESA shall be identified by the Operator and shall be fenced/flagged as described above.

18. Vehicles shall not be operated in areas of surface water or in areas where riparian or aquatic species of plants are present, except as otherwise addressed in this Agreement or without prior approval from the Department.

19. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream, shall be positioned over drip-pans. Any equipment or vehicles driven and/or operated within or adjacent to the

stream shall be checked and maintained daily to prevent leaks of materials that could be deleterious to aquatic and terrestrial life. Vehicles shall be moved away from the stream prior to refueling and lubrication.

20. The cleanup of all spills shall begin immediately. The Department shall be notified immediately by the Operator of any spills and shall be consulted regarding cleanup procedures.

Erosipn/Sedimentation/Turbidity

21. All disturbed soils within the Project site shall be stabilized to reduce erosion potential, both during and following construction. Planting, seeding with native species, and mulching is conditionally acceptable. Where suitable vegetation cannot reasonably be expected to become established, non-erodible material shall be used for such stabilization. Any installation of non-erodible material, not included in the original Project description, shall be coordinated with the Department. Coordination may include the negotiation of additional Agreement provisions for this activity (see Restoration below).

22. Silty water shall not be discharged into the stream, or turbidity created within the stream at levels harmful to aquatic life. Using a handheld device, turbidity shall be monitored and recorded during project activities, at a point from between 200 feet and 500 feet downstream of each gravel infusion location. The precise monitoring point shall be the safest location where stream flows best approximate the average flow condition in the sampled reach. Samples shall be collected continuously during gravel infusion activities. If turbidity levels resulting from project-related activities reach a level greater than 23 Nepholemetric Turbidity Units (NTUs), activities shall be halted until NTUs fall below 10. Project activities shall resume, at a reduced level if practicable, as long as NTUs remain below 23. The results of the turbidity monitoring, including exceedances and measures taken to reduce elevated turbidity levels, shall be submitted with the Final Project Report as described in the MRP below. Any modification of the above directive shall first be coordinated with the Department.

Pollution

23. Oil or other petroleum products, or any other substances which could be hazardous to fish or wildlife resulting from or disturbed by Project related activities, shall be prevented from contaminating the soil and/or entering the Waters of the State.

24. All Project generated debris, building materials and rubbish shall be removed from the stream and from areas where such materials could be washed into the stream.

25. The Operator and all contractors shall be subject to the water pollution regulations found in the Department of Fish and Game Code Sections 5650 and 12015.

Diversion

26. Project-related water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semi-aquatic species of wildlife. Pump inflow tubes or hoses shall be contained within a 0.5-millimeter mesh screened cage to exclude all wildlife that may otherwise be harmed in the process.

27. Any equipment or structures placed in the active channel for water drafting, pumping or diversion shall be done in a manner that (a) prevents pollution and/or siltation, (b) provides flows to downstream reaches at all times to support aquatic life; (c) provides flows of sufficient quality and quantity, and of appropriate temperature to support aquatic life, both above and below the diversion; and (d) restores normal flows to the affected stream immediately upon completion of work at each location. The Department shall be notified prior to any implementation of diversions not previously described in the Operator's notification.

Fish Passage

28. When any artificial obstruction is being constructed, maintained, or placed in operation, within the active channel, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the obstruction pursuant to Fish and Game Code Section 5937.

Fill/Spoil

29. Spoil storage sites shall not be located within the stream, where spoil will be washed into the stream, or where it will cover aquatic or riparian vegetation.

30. Excess fill material shall be moved off-site at Project completion.

Restoration

31. Project generated material and debris shall be removed from the Project site following completion of construction. All Project generated debris shall be disposed of in a legal manner.

32. The Operator shall remove and recontour any constructed access corridors in the stream channel, bed or banks as nearly as possible to their original configuration and channel width.

33. Restoration shall include the revegetation of all disturbed soils and new fill, including recontoured slopes and all other cleared areas, with riparian vegetation or other plants as appropriate.

34. A Revegetation Plan shall be prepared and submitted for Department approval. The Plan shall address revegetation by hydroseeding, and tree plantings to compensate for removed trees as prescribed below:

Revegetation by hydroseeding shall include seeding and mulching of all disturbed soils and new fill, including recontoured slopes and all other cleared areas with a blend of a

minimum of three locally native grass species. One or two sterile normative perennial grass species may be added to the seed mix provided that amount does not exceed 25 percent of the total seed mix by count. Locally native wildflower and/or shrub seeds may also be included in the seed mix. The seeding shall be completed as soon as possible, but no later than November 15 of the year construction ends. At the discretion of the Department, all exposed areas where seeding is considered unsuccessful after 90 days shall receive appropriate soil preparation and a second application of seeding and mulching as soon as is practical.

If applicable (to compensate for removed riparian shrubs and trees), the Plan shall identify tree and shrub species that will be planted, how, where, and when they will be planted, and measures to be taken to ensure a performance criteria of 70 percent survival of planted trees for a period of three consecutive years. The tree plantings shall be based on native tree species compensated for in the following manner:

- Oaks having a DBH of three to five inches shall be replaced in-kind, at a ratio of 3:1, and planted during the winter dormancy period in the nearest suitable location to the area where they were removed. Oaks with a DBH of greater than five inches shall be replaced in-kind at a ratio of 5:1.
- Riparian trees (i.e., willow, cottonwood, poplar, alder, ash, etc.) and shrubs shall be replaced in-kind and on site, at a ratio of 3:1, and planted in the nearest suitable location to the area where they were removed.
- If wetland vegetation will be damaged or removed by project activities, it shall be replaced by securing the wetland soils and seed bank prior to excavating. Then, following construction, the soil shall be replaced in the same location from where it was removed. Performance criteria for wetland revegetation shall be 100 percent coverage of disturbed wetland areas.
- If riparian and wetland revegetation is required as described above, a Restoration Monitoring Report shall be submitted to the Department annually beginning one year after the date of Project completion and continuing each subsequent year until the performance criteria is met as described in the Monitoring and Reporting Program (MRP) below.

35. If the Project causes any exposed slopes or exposed areas on the stream banks, these areas shall be seeded (with weed-free straw or mulch) with a blend of a minimum of three locally native grass species. One or two sterile normative perennial grass species may be added to the seed mix provided that amount does not exceed 25 percent of the total seed mix by count. Locally native wildflower and/or shrub seeds may also be included in the seed mix. The seeding shall be completed as soon as possible, but no later than November 15 of the year construction ends. A seed mixture shall be submitted to the Department for approval prior to application. At the discretion of the Department, all exposed areas where seeding is considered unsuccessful after 90 days shall receive appropriate soil preparation and a second application of seeding, straw, or mulch as soon as is practical on a date mutually agreed upon.

36. Where suitable vegetation cannot be reasonably expected to become established, non-erodible materials shall be used for such stabilization. Any installation of non-erodible materials not described in the original Project description shall be coordinated with the Department. Coordination may include the negotiation of additional Agreement Provisions for this activity.

MONITORING AND REPORTING PROGRAM (MRP):

PURPOSE OF THE MRP

The purpose of the MRP is to ensure that the protective measures required by the Department are properly implemented, and to monitor the effectiveness of those measures.

OBLIGATIONS OF THE OPERATOR

The Operator shall have primary responsibility for monitoring Project compliance and effectiveness of all protective measures included as "Provisions" in this Agreement. Protective measures must be implemented within the time periods indicated in the Agreement and as described below.

The Operator shall submit the following to the Department:

- Construction/work schedule (Provision 2).
- If necessary, Preconstruction Biological Surveys for nesting birds (Provision 13).
- If necessary, a Revegetation Plan (Provision 34) shall be submitted to the Department prior to project implementation. The Plan shall disclose vegetation type, species and quantities impacted as appropriate; describe locations of removed and revegetated plants, and shall propose methods to comply with Provision 33. The Plan shall also include submission of monitoring reports to be submitted annually from the date of project completion.
- A seed mixture to be used to control erosion (Provision 35).
- A Final Project Report submitted within 30 days after the Project is completed. The final report shall summarize Project activities, turbidity monitoring results, and any problems relating to the protective measures of this Agreement. "Before and after" photo documentation of the Project site shall be required.

In addition to the above monitoring and reporting requirements, the Department requires as part of this MRP that the Operator:

- Immediately notify the Department in writing if monitoring reveals that any of the protective measures were not implemented during the period indicated in this program, or if it anticipates that measures will not be implemented within the time period specified.

- Immediately notify the Department if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures. This includes any erosion detected in the Project area.

VERIFICATION OF COMPLIANCE:

The Department shall verify compliance with management compliance measures to ensure the accuracy of the Operator's monitoring and reporting efforts. The Department may, at its sole discretion, review relevant Project documents maintained by the Operator, interview the Operator's employees and agents, inspect the Project area, and take other actions to assess compliance with or effectiveness of management compliance measures for the Project.

CONCURRENCE:

APPROVED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 7-26, 2007.

for/ Julie Means
W. E. Loudermilk, Regional Manager
Central Region

ACKNOWLEDGMENT

The undersigned acknowledges receipt of this Agreement and, by signing, accepts and agrees to comply with all terms and conditions contained herein. The undersigned also acknowledges that adequate funding shall be made available to implement the measures required by this Agreement.

By: _____ Date: 7-16-07

John Hannon
United States Bureau of Reclamation